

REMARKS

At the outset, it appears that the Examiner may not have examined the correct claims. As indicated in footnote 1, the claims, prior to the present amendment, are those as of the Amendment filed in response to the IPER and as reflected in "Amended Sheet(s)" 12, 13 and 14 herein.

The rejections of Claims 1, 2 and 11 under 35 U.S.C. § 102(b) as anticipated by, and of Claims 3, 12, and 13 under 35 U.S.C. § 103(a) as unpatentable over, EP0333299 (Coppens), are respectfully traversed. Coppens discloses the addition of chopped bundles of glass or mineral fibers in an amount of 0.2-0.8% by weight, with respect to the mineral constituents in a road paving composition comprising a bituminous binder and such mineral constituents, wherein the length of the filaments is between 5 and 50 mm, and the diameter of the filaments is at least one micrometer. Coppens is concerned with improving of strength characteristics of asphalt layers by adding chopped fibers with an adhesion-promoting protective coating. In Coppens, added fibers are always clearly presented as chopped fibers, and there is no disclosure or suggestion of any flake form or any agglomerating of chopped fibers into any flake form as a result of any operation. On the contrary, the adhesion-promoting protective coating, preferably composed of chemically modified bitumen compositions, is present in order to provide mechanical protection and protection against rubbing and breakage. Contrary to the Examiner's finding, flake formation is not "intrinsic" but is the result of an appropriate operation such as milling (or crushing); furthermore, a special flake shape is also the result of the choice of glass filaments with different diameters, which is nowhere described in Coppens. In addition, in the examples of Coppens, glass fiber monofilaments having a length of approximately 13 mm and a diameter of approximately 13 micrometers are used.

Thus, Coppens neither discloses nor suggests the presently-claimed subject matter. In addition, the dependent claims are separately patentable, particularly those reciting a particular E-type glass, such as Claim 23, and Claim 41, which recites filaments from two different yarns, one having a diameter of less than 10 micrometers, and one having a diameter of greater than 14 micrometers. While the Examiner relies herein on the disclosure in the specification at page 5, lines 19-21 that E-glass is known to have a number of superior properties, it is **Applicants'** discovery, not that of the prior art, that such properties would be useful in the present invention. Compare *In re Ruff*, 118 USPQ 340, 347 (CCPA 1958) (**copy enclosed**) ("To rely on an equivalence *known only to the applicant* to establish obviousness is to assume that his disclosure is a part of the prior art. The mere statement of this proposition reveals its fallaciousness.")

For all the above reasons, it is respectfully requested that the rejections over Coppens be withdrawn.

The rejection of Claims 1-3 and 11-13 under 35 U.S.C. § 112, second paragraph, is respectfully traversed. The present claims no longer contain parenthetical numbers. Accordingly, it is respectfully requested that the rejection be withdrawn.

The objection to Claims 4-10 and 14-21 as being in improper multiple dependent form is respectfully traversed. The issue is now moot, in view of the above-discussed amendment. Nevertheless, of the claims properly before the Examiner prior to the present amendment, Claims 9-11 were proper dependent claims, and thus each of these claims should have been examined on the merits. Therefore, the next Office communication, if not a Notice of Allowance, should not be made Final, even if any new rejections were necessitated by amendments to the claims, since at least Claims 9 and 10 were erroneously not examined on the merits. Accordingly, it is respectfully requested that the objection be withdrawn.

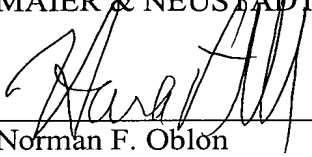
Application No. 09/926,318
Reply to Office Action of September 9, 2003

Finally, Applicants note that the Office Action Summary page does not indicate whether or not the drawings have been accepted. Have they been accepted?

All of the presently pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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In re RUFF AND DUKESHIRE, 118 USPQ 340 (CCPA 1958)

In re RUFF AND DUKESHIRE

(CCPA)

118 USPQ 340

Decided June 24, 1958

Appl. No. 6357

U.S. Court of Customs and Patent Appeals

Headnotes

PATENTS

1. Patentability—Substitution of equivalents (§ 51.65)

Mere substitution of equivalent is not act of invention.

2. Patentability—Substitution of equivalents (§ 51.65)

Prior art teaching is in itself enough to support rejection where it teaches functional equivalency between claimed subject matter and what is in prior art.

3. Evidence—In general (§ 36.01)

When one, without knowing how it is going to affect his interest, makes a statement which he later attempts to deny when he finds it against his interest, he will not be believed unless he produces convincing proof of his later assertion.

4. Patentability—Substitution of equivalents (§ 51.65)

There is basic difference between (a) showing by applicant of what art knows to be equivalents or what means taken from art he can use indiscriminately without affecting his invention in carrying it out, and (b) showing that he found, as part of his discovery or inventive

process, that certain things may be used to achieve same result; findings are his property, and he does not lose all of them just because of his showing when it turns out that others earlier discovered one or more of them.

5. Patentability—Substitution of equivalents (§ 51.65)

Claims should not be rejected solely on applicant's own showing of equivalency; it is only where equivalency is known to prior art or obvious to one of ordinary skill in the art that substitution of one equivalent for another is not invention; even though reference is not produced to show equivalence which is in fact art-recognized or obvious, applicant's own express recognition of it may be sufficient basis on which to refute his subsequent argument that equivalence does not exist.

6. Patentability—Substitution of equivalents (§ 51.65)

That two things are actually equivalents, in the sense that they both perform same function, is not enough to bring into play the rule that when one of them is in the prior art the use of the other is obvious and cannot give rise to patentable invention; applicants often invent, disclose, and attempt to claim more than turns out to be novel; they should not be penalized merely because of their own industry and the fullness of their disclosures.

7. Patentability—Substitution of equivalents (§ 51.65)

To rely on equivalence known only to applicant to establish obviousness is to assume that his disclosure is part of prior art; this is contrary to 35 U.S.C. 103, wherein test laid down is whether difference between what is claimed and the prior art would have been obvious to one of ordinary skill in the art at time invention was made.

8. Claims — Broad or narrow — Markush type—In general (§ 20.2051)

Patentability—Substitution of equivalents (§ 51.65)

Markush groups originally were regarded as exception to previously acceptable claim terminology and were rigidly restricted to groups of substances belonging to recognized class; original rigid restrictions have been progressively relaxed to the point where it is no longer possible to indulge in presumption that members of Markush group are recognized by anyone to be equivalents except as they possess at least one property in common which is mainly responsible for their function in the claimed relationship; thus, it cannot be stated as a general rule that cancellation of anticipated member from Markush group does not avoid anticipation of remaining members; however, principle of rule applies if Markush group is made up of materials

from art-recognized or scientific class of equivalent substances, but it cannot be applied as matter of course to everything called a Markush group.

9. Claims—Broad or narrow—Markush type—Chemical (§ 20.2053)

Patentability—Substitution of equivalents (§ 51.65)

"Markush group" has come to be applied to chemical formula-type claims which are unlike claims of early cases in the Markush line; thus, under section 706.03(y) of Manual of Patent Examining Procedure, wherein it is stated that where Markush expression is applied only to portion of chemical compound, the propriety of grouping does not depend on there being community of properties in members of Markush expression, the mere fact of members having been claimed together fails to show any equivalency other than functional equivalency discovered and first disclosed by applicant; this may not be relied on for rejection.

10. Patentability—Substitution of equivalents (§ 51.65)

Actual equivalence is not enough to justify refusal of patent on one member of group when another member is in prior art; equivalence must be disclosed in prior art or be obvious within terms of 35 U.S.C. 103.

11. Court of Customs and Patent Appeals — Issues determined — Ex parte patent cases (§ 28.203)

Court cannot consider point not raised by examiner or Board.

Particular patents — Polyphosphate Composition

Ruff and Dukeshire, Polyphosphate Composition Containing Tarnish Inhibitor, claims 20, 23, 24, 29, 30, 32, 33, and 35 of application allowed.

Case History and Disposition:

Appeal from Board of Appeals of the Patent Office.

Application for patent of Edgar E. Ruff and Robert E. Dukeshire, Serial No. 172,776, filed July 8, 1950; Patent Office Division 64. From decision rejecting claims 20, 23, 24, 29, 30, 32, 33, and 35, applicants appeal. Reversed; Worley, Judge, concurring with opinion.

Attorneys:

BRUMBAUGH, FREE, GRAVES & DONOHUE (EBEN M. GRAVES and JOHN R. JANES of counsel) all of New York, N.Y., for appellants.

CLARENCE W. MOORE (J. SCHIMMEL of counsel) for Commissioner of Patents.

American Patent Law Association, C. WILLARD HAYES, Washington, D. C., President, WILLIAM J. BARNES, New York, N. Y., Immediate Past President, NEAL A. WALDROP, Detroit, Mich., Chairman, Chemical Practice Committee, LELAND L. CHAPMAN, Cleveland, Ohio, Immediate Past Chairman, Chemical Practice Committee (PAUL L. TILLSON, Pittsburgh, Pa., and JOHN D. UPHAM and FREDERICK C. WELLINGTON, both of Dayton, Ohio, of counsel) amicus curiae.

Judge:

Before JOHNSON, Chief Judge, and O'CONNELL, WORLEY, and RICH, Associate Judges.

Opinion Text

Opinion By:

RICH, Judge.

The appellants, Edgar E. Ruff and Robert E. Dukeshire, filed an application on July 8, 1950, entitled "Polyphosphate Composition Containing Tarnish Inhibitor," serial No. 172,776. On

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this appeal it contains claims 20 through 35. Claims 21, 22, 25-28, 31 and 34 stood withdrawn from consideration under Patent Office Rule 142(b) and as to them the board dismissed the appeal, affirming the rejection of the others as "lacking invention over" references. Thus, no claim stands allowed.

Claim 20 is illustrative and reads:

20. A composition comprising a water-soluble polyphosphate which in aqueous solution tarnishes copper and copper and nickel alloys and a tarnish inhibitor in an amount to lessen the tarnishing action of the polyphosphate and having the general formula

Graphic material consisting of a chemical formula or diagram set at this point is not available. See text in hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323. where X is selected from the group consisting of oxygen and sulfur and Z is a radical taken in sufficient number to satisfy the free valences of the 4- and 5- ring carbon atoms and is selected from the group consisting of hydrogen, oxo oxygen, alkyl, aryl and saturated and unsaturated mono and polynuclear alicyclic and heterocyclic rings condensed therewith.

The references relied on are:

Schaeffer, 2,618,603, Nov. 18, 1952.

Schaeffer, 2,618,605, Nov. 18, 1952.

The invention relates to synthetic detergent compositions such as are used for dishwashing and which contain polyphosphates as "builders." While the latter greatly improve the effectiveness of the composition as a detergent, they cause tarnishing of copper and copper and nickel alloys, of which many utensils are made. The invention is directed to the solution of this serious commercial problem by the incorporation in the composition of a complex organic compound which functions as a tarnish inhibitor.

Reducing the formula of claim 20, supra, to the verbal language of the art, the compounds it symbolizes are all 2-mercapto compounds. Where the "X" is oxygen the compounds are either 2-mercaptooxazoles or 2-mercaptooxazolines; where it is sulfur they are 2-mercaptothiazoles or 2-mercaptothiazolines. The "mercapto" aspect of the nomenclature results from the presence of the -SH radical.

The whole problem in this case arises because the application, as filed, disclosed and claimed in addition to the amino compounds corresponding to the foregoing mercapto compounds. This it did in words and also by formula, the latter being the same as in claim 20 except that where it has "SH" there was a "Y" defined as follows: "Y is a radical selected from the group consisting of mercapto and amino radicals, i.e., SH and NH₂ radicals," which will be recognized as a "Markush" expression.

Appellants, by amendment, removed from their application all reference to the amino compounds and in doing so changed the class symbol Y in the formula to the specific radical -SH. The record shows that this was done in view of the Schaeffer patents with which an interference had been threatened but the filing dates of which appellants could not antedate.¹ The amendment was made promptly upon their issuance and the examiner cited them on the next action. They have since been relied on as showing that the detergent composition containing the cancelled amino compounds was effectively in the "prior art" and there is no question about this being so.

The sole issue before us is whether the retained claims to the compositions containing the unanticipated mercapto compounds are patentable to appellants under the above circumstances.

No facts being in dispute, the question is one of law.

Appellants say "The patentability of appellants' claims is not seriously disputed by the examiner and the Board of Appeals," but since they have both persisted in rejecting them we take this statement to mean either that patentable *novelty* of the claimed subject matter is

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not disputed or that the claims are all conceded to be patentable if we reverse the single ground of rejection relied on, which has to do with a peculiar aspect of the issue of "invention" which issue, since 1952, has been codified in 35 U.S.C. 103 in terms of unobviousness. Stated in another way, appellants insist that they have complied with all of the requirements of 35 U.S.C. 102 and 103 and are therefore, to quote the former, "entitled to a patent." There is no dispute about compliance with section 102. As to section 103, however, in answer to appellants' insistence that it has been complied with, the Board of Appeals has opposed two "doctrines" which it says have been established by this court and by which it is bound. Appellants reply that such a rejection is "non-statutory," which we take to mean *contrary* to the statutes rather than one not authorized by them.

The Grounds of Rejection

[1]The examiner's position in rejecting all claims was essentially that appellants originally claimed the compositions made with both the amino and the mercapto compounds, that these two groups of compounds are "equivalents," and that since the amino compound compositions are in the prior art the mercapto compound compositions are not patentable to appellants because of this equivalency. This would be sound, if true, according to the ancient negative rule of "invention" that the mere substitution of an equivalent is not an act of invention. *Butler Bros. v. Pratt*, 253 F. 654, 656 (CCA-8), and cases there cited. The examiner made the categorical statement that " *The equivalency of the various members of the Markush group of tarnish-inhibitors as originally disclosed and claimed in the instant case is a fact.* " (Emphasis ours.) However, he cited no prior art patent, text or treatise but demanded "convincing evidence of unequivalency" as a prerequisite to patentability and called attention to the cases of *In re Ayres*, 23 C.C.P.A. (Patents) 1118, 83 F.2d 297, 29 USPQ 424 ; and *In re Borchardt et al.*, 39 C.C.P.A. (Patents) 1045, 197 F.2d 550, 94 USPQ 175 .

Appellants, on appeal to the board, argued strenuously, as they do here, the point which they stated in their summary thus:

There is no basis in the law for denying claims where, as the sole basis for the finding of non-patentability, the appellant's own disclosure is taken as an admission of equivalency, and such equivalency is not obvious to those skilled in the art, and is not shown or suggested in the art.

They also cited to the board a line of cases, typified by *Ex parte Shelton*, (Bd. App.) 49 USPQ 36 , holding that an applicant should not be rejected on his own showing of equivalency where such

equivalency was not known to the art.

In affirming the examiner, the board, after stating that the rejection "is on the basis that the 2-aminothiazoles [disclosed by Schaeffer] are the full *and admitted* equivalents of the remaining group of inhibitors which appellants are now claiming," (emphasis ours) and after adverting to appellants' argument that the Schaeffer disclosure is insufficient to permit anyone to predict any utility for the claimed mercapto group of inhibitors, said,

All of the foregoing does not alter the fact that one of the groups originally claimed by appellants as tarnish inhibitors *in a Markush claim* (Emphasis ours) is, in fact, disclosed by Schaeffer. Under these circumstances the legal doctrines of *In re Ayres* and *In re Borchardt et al.* immediately become applicable.

While throughout its opinion the board speaks repeatedly of the Borchardt et al. "doctrine," we do not find that either the examiner or the appellants, in their brief before the board, made any reference to such a "doctrine." A review of this court's opinion in the Borchardt et al. case discloses no apparent intent to state any new doctrine and our first enquiry, therefore, is as to just what is meant by the board in referring to this so-called doctrine on which it quite clearly predicated its decision, at least in part, and which seems to have been evolved in the Patent Office.

The first clue we have is the board's statement that the examiner had pointed out that "under the doctrine of *In re Borchardt et al.*, * * * appellants' own disclosure of equivalency alone may be sufficient to sustain this type of rejection." The next clue is that the board itself said that it did not "agree with appellants' interpretation of the Borchardt et al. doctrine as requiring that the prior art establish the equivalency admitted in appellants' specification before the doctrine becomes applicable. * * * The rejection would then simply be made on the basis of prior art showing the equivalency rather than appellants' original concession of equivalency." Looking at the fact situation before us, as to which there is no dispute, we see that the only supposed disclosure, concession or admission of equivalency is predicated on the fact of appellants having *included in the same application a disclosure of both the amino and the mercap*

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to types of tarnish inhibitors and on having originally claimed both of these groups in generic claims. It seems to us that the board places perhaps its greatest emphasis on the fact that in those generic claims the amino and mercapto compounds were included in a "Markush" group, the "Y" in the formula and its defining clause. On this point, since *In re Borchardt et al.* in no way involved any Markush group, we have also to consider the other "doctrine," that of *In re Ayres*, which the board specifically stated to be as follows:

The *In re Ayres* decision stands for the proposition that the mere cancellation of an anticipated member from the Markush group does not avoid anticipation of the remaining members of the group. In order for appellants to obtain a patent on the more restricted group here presented it would be necessary for them to show that its members

possessed properties not shared by the larger group, *Ex parte Watt*, 1944 C.D. 5, 568 O.G. 193, 63 USPQ 163. Appellants have made no such showing.

In a petition asking for reconsideration by an augmented board, because of the importance of the matter, appellants said that the question in this case presented a direct challenge to the "doctrines" of the *Borcherdt* and *Ayres* cases, as the board had applied them, claiming that no decision of this court had based a finding of equivalency *solely* on an applicant's own disclosure, where the prior art did not show the equivalency and where it would not be obvious to those skilled in the art. In denying the petition the board said that the question was one it had ruled on many times and that it had consistently been upheld by this court. It felt itself bound by the precedents.

Before us the American Patent Law Association, through its Chemical Practice Committee, has filed an amicus brief and presented oral argument. It would appear that the "*Borcherdt* doctrine" has become a matter of grave concern to applicants for patents, particularly those in the chemical field, and that the decision in the instant case to an unusual extent concerns others than the appellants.

While there is some overlap as between what we shall hereinafter call the *Ayres* doctrine and the *Borcherdt* doctrine, and while the *Borcherdt* case cites, *inter alia*, the *Ayres* case, the board treated them as two doctrines, the Patent Office Solicitor presented his case in two corresponding separate parts and we shall do likewise, considering first the *Borcherdt* doctrine aspect of the case.

The Borcherdt Doctrine

[2]As we have already suggested, the opinion in the *Borcherdt* case does not indicate that this court was conscious of having promulgated any new doctrine. The passage which apparently underlies the "doctrine" purports to state the rule of seven prior decisions. The board in its opinion herein, furthermore, made the statement that "The *Borcherdt et al.* doctrine was expounded by the Court of Customs and Patent Appeals on its own initiative in *In re Bloomer*, 37 C.C.P.A. (Patents) 770, 1950 C.D. 80, 633 O.G. 331, 178 F.2d 407, 84 USPQ 135 and has been consistently followed by that court in subsequent decisions." Four cases were then cited, one of which was prior to the *Borcherdt* case. The doctrine seems to have been misnamed and should, perhaps, have been called the "*Bloomer* doctrine." In any event it is clear it did not originate in the 1952 *Borcherdt* opinion. The Patent Office Solicitor, on the other hand, believes the doctrine, as he conceives it, originated in *In re McKee*, 22 C.C.P.A. (Patents) 1010, 75 F.2d 635, 24 USPQ 414, in 1935, and that there are in excess of 30 decisions in this court on the matter. But he includes among those cases those *in which the prior art taught the functional equivalency between the claimed subject matter and what was in the prior art*. As we understand the patent law, such a *prior art* teaching is in itself enough to support a rejection and in such cases there is neither room nor need for a *Borcherdt* doctrine of the kind the board relied on here. The whole burden of appellants' complaint is that the board's application of this doctrine is such as to *substitute* it for a prior art showing, thus denying a patent *because of what the applicant said or*

did in his own application regardless of the prior art, insofar as denying patentability because of equivalency with something in the prior art is concerned.

It will be illuminating, perhaps, to contrast *In re McKee* with the present case. The invention there claimed was a method of slicing meat by first freezing it. The application *defined* "slicing" as including subdividing "in whatever manner may be employed, as for instance, by means of a knife, chopping tool, or saw." The thus defined term "slicing" was employed in the claims and the applicant himself had determined what it was to mean. The first thing to note is that the court fully agreed with the board that the claims, so written, *were fully met by the references* because the applicant had so broadened the meaning of "slicing" as to read on chopping and sawing, which the references showed.

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When it was argued that claims specifically limited to the use of a knife blade cutter should be allowed, this court said, 24 USPQ at 415,

The difficulty with this position is that the appellant, by his definition of the meaning of "slicing," * * * considers a knife, a chopping tool, and a saw as equivalents. If he so considers and treats them, then he can claim no patentable distinction between them upon this application.

In other words, the applicant had made it about as clear as possible that so far as his invention was concerned, which resided in the slicing of meat while frozen, it made no difference—and a fortiori not a patentable difference—what *kind* of a cutter was used. When he made an about face and tried to base patentability on the use of the one cutter not disclosed in the art cited against him, this court was quite naturally unimpressed with the force of his argument that "invention" was involved in the difference between a knife and a chopper or a saw. If this be the Borchardt doctrine, then long may it continue.

Now let us consider the present case. Appellants in their search for tarnish inhibitors made the discovery that two different classes of complex organic chemical compounds were effective for that purpose, the aforesaid amino and mercapto compounds. The chemists working for their assignee's competitor, carrying on the same search, discovered the effectiveness of the amino compounds first. Now, says the Patent Office, solely for the reason that you included both groups in one application, and even after deletion of the amino group in which you lost the race to your rival Schaeffer, you cannot have a patent on the detergents including the mercapto compounds because they are not patentable. They are not patentable because they are the "equivalents" of the amino compounds which you were not the first to invent and all the proof we need of that fact is that in your application *you said* that they were useful for the same purpose. "* * * the legal doctrine of * * * *In re Borchardt et al.* immediately becomes applicable." Since you admitted such equivalency, there is no need, under the Borchardt doctrine, to show that such equivalency was known to a soul. The *Ex parte Shelton* type of decision (49 USPQ 36), holding that rejection should not be based on an applicant's own disclosure of equivalency, "must be

considered to have been overruled" by *In re Borchardt et al.*

That the *Borchardt et al.* case should have supplied the name of this doctrine is strange, considering what was there involved and what was decided. The applicants claimed a process of preparing organic nitriles which involved reacting, under certain conditions in a certain medium, a chlorhydrocarbon and hydrogen cyanide (HCN). The opinion states that one reference, Hager, "describes and claims that identical process * * * with the exception that NaCN (sodium cyanide) is employed in the patent instead of HCN." Now that reference, and the other three references, all issued the same day to the assignee of the *Borchardt et al.* application, the duPont Company. The issue raised by the references was "double patenting." This, in turn, depended on whether the claims on appeal were for a *patentably distinct* invention, and, as we have indicated, this rested on whether it was inventive or merely obvious to use HCN instead of NaCN. The application involved disclosed only HCN and contained nothing to indicate its equivalency in the process with NaCN; but another reference, *Webb et al.*, owned by the same assignee, did, in both its description and by claiming the two in a Markush group. The *examiner relied on that reference to show the equivalency* and to negative invention. On the actual issue of patentable distinction which was before the court, the most significant statement is this, 94 USPQ at 177:

There does not seem to be any controversy that NaCN and HCN are equivalents in the claimed process. Counsel for appellants seems to be opposed only to the manner in which the examiner sought to establish such equivalency. (Emphasis ours.)

The court then went on to say that it felt that *the assignee*, having permitted the *Webb et al.* patent to issue, "may not now question the fact or form by which equivalency is established." In the next paragraph it repeated the thought thus:

* * * the *Webb et al.* patent has been properly used to support the fact of equivalency.

* * * In our opinion, the question of equivalency of hydrogen cyanide may not now properly be urged by appellants in view of the disclosure in claim 1 of the *Webb et al.* patent.

The court's ultimate conclusion was, of course, that there was no patentable distinction over the Hager patent claims but this decision certainly was not predicated on anything said or done by the applicants. The entire controversy over the use of the *Webb et al.* reference was whether it was "technically prior art." The court did not decide that point

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but said that even if it was assumed not to be, duPont, its owner, prosecuting the application at bar, by taking out that patent saying HCN and NaCN were equivalents in the process, was not properly in a position to deny it.

[3] Considered for what it is, a problem of getting at a fact—equivalency or non-equivalency—the situation is a commonplace one in the law and runs all through the cases cited in *In re Borchardt et al.* and the cases which, in turn, cite it. When a man, or a witness, or an

applicant for a patent, without knowing how it is going to affect his interest, makes a statement which he later attempts to deny when he has found it is against his interest, he will not be believed unless he produces convincing proof of his later assertion.

[4] However, there is a basic difference between (a) a showing by an applicant for patent of what the *art knows* to be equivalents or what means taken from the art he can use indiscriminately without affecting his invention in carrying it out, and (b), a showing that *he has found*, as a part of his discovery or inventive process, that certain things may be used to achieve the same result. These findings are his property and he does not lose *all* of them just because of his showing when it turns out that others have earlier discovered one or more of them.

We have examined all of the cases relied on by the Board of Appeals as having followed the Borchardt et al. case, which it considered to be binding on it, all of the cases cited in the Borchardt et al. opinion in support of the dictum, which seems to be principally relied on to support the "doctrine," to the effect that an applicant's own disclosure of equivalency " *may be* sufficient for the rejection of a claim specific to one equivalent where the other appears in the prior art," (emphasis added), and all of the additional cases cited by the Patent Office as bearing on the Borchardt doctrine. We have found none which clearly supports the application of the doctrine which has been made in the present case. We are of the opinion that that application was in error.

The error which we find in this case is of a type which is constantly recurring, and on that ground possibly excusable, being the result of undue generalization from particular cases. The cases which gave rise to what has come to be called the "Borchardt doctrine" are sound in result, well reasoned, and they appeal to common sense. They even support the Borchardt case dictum that an applicant's disclosure alone *may be* sufficient for the rejection of a claim. But they do not support what has been done here. The difficulty appears to reside in an indiscriminate use of the word "equivalents" and a failure to consider the type of fact the applicant has disclosed.

Two lines of cases have to be reconciled.

[5] The following Board of Appeals cases properly hold that an applicant's claims should not be rejected solely on his own showing of equivalency; that it is only where equivalency is known to the prior art or obvious to one of ordinary skill in the art that the substitution of one equivalent for another is not invention. Ex parte Shelton, 49 USPQ 36 ; Ex parte Scrutcheon, 66 USPQ 368 ; Ex parte Manor, 71 USPQ 271 ; Ex parte Fein et al., 81 USPQ 73 ; and Ex parte Ancrum, 91 USPQ 301 . It will be found on examination that the equivalence which the applicants in these cases showed was not previously known to the art.

The following cases might be cited for the proposition that an applicant's own showing of equivalence *may be* used as the basis for rejecting a claim, and the list is but exemplary. In re McKee, supra, the meat slicing case; In re Hartung, 28 C.C.P.A. (Patents) 1364, 121 F.2d 529, 50 USPQ 151 , disclosing a homologous series of catechols having 4 to 8 carbon atoms where the six carbon atom member was in the prior art; In re Lobdell, 35 C.C.P.A. (Patents) 1091, 167 F.2d 634, 77 USPQ 377 , showing brazing as the known equivalent of silver soldering to hold the

cutting tips in tool shanks; In re Switzer et al., 35 C.C.P.A. (Patents) 1013, 166 F.2d 827, 77 USPQ 156, carbon black and titanium dioxide as known equivalent inert fillers or pigments in a coating; In re Withington, 26 C.C.P.A. (Patents) 1290, 104 F.2d 192, 41 USPQ 742, intaglio as the equivalent of cameo brand markings on a wooden handle; In re Lindberg, 39 C.C.P.A. (Patents) 866, 194 F.2d 732, 93 USPQ 23, a hydraulic drive for the agitator in a tank versus a chain and pulley drive; In re Stewart, 42 C.C.P.A. (Patents) 937, 222 F.2d 747, 106 USPQ 115, removing a film with a swab or with a spray of air and water. Some of these cases were cited by the board to support the Borchardt doctrine and others were cited in the Borchardt case to support its dictum that the applicant's own disclosure of equivalence might be enough. There are many others, some more complex in their facts, but the principle running through these cases is basically the same in each. Even though a reference is not produced to show an equivalence *which is in fact art-recognized or obvious*, the applicant's own express recognition of it may be a sufficient basis on which

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to refute his subsequent argument that equivalence does not exist. We see nothing wrong with the "Borchardt doctrine" if it is kept within this limitation. The danger in the "doctrine" is that it is such a handy means of relieving hardpressed examiners of the necessity for searching the prior art that they tend to apply it indiscriminately.

[6] That two things are *actually* equivalents, in the sense that they will both perform the same function, is not enough to bring into play the rule that when one of them is in the prior art the use of the other is obvious and cannot give rise to patentable invention. One need not think very hard to appreciate that the vast majority of patentable inventions perform old functions. In the bearing art, for example, we have progressed through wood blocks, bronze bushings, ball bearings, roller bearings, tapered roller bearings, needle bearings and sintered powdered metal impregnated with lubricant, to name a few. Today they are art-recognized equivalents. But if, in the course of this progress, ball and roller bearings had both been invented by one person and disclosed in one application, and the art had never heard of roller bearings before, on what theory would a patent be denied on the latter when it turned out that another was the first to invent the ball bearing? That the inventor said they would perform the same functions? This is not an imaginary problem for patent applicants more often than not invent and disclose and attempt to claim more than turns out to be novel when the art is searched. They should not be penalized merely because of their own industry and the fullness of their disclosures. So far as we have been able to find, this court has never made an intimation to the contrary.

[7] A safer guide for those who crave an easy answer to the issue of patentability than the now somewhat confused Borchardt or Ayres doctrines is the patent statutes, for they were written to apply in all cases, as no single court decision ever is, dealing as it does with a specific set of facts which is rarely duplicated. This question of equivalence, as we said at the beginning, is a special aspect of what amounts to patentable "invention," assuming novelty to exist. The statutory provision on this subject is 35 U.S.C. 103 and the test there laid down is simply whether the difference between what is claimed *and the prior art* would have been obvious to one of

ordinary skill in the art at the time the invention was made. ²

To rely on an equivalence *known only to the applicant* to establish obviousness is to assume that his disclosure is a part of the prior art. The mere statement of this proposition reveals its fallaciousness.

Though the "equivalence" involved in *Graver Tank & Mfg. Co., Inc. v. Linde Air Products Co.*, 339 U.S. 605, 85 USPQ 328, cited in the Borchardt opinion, was a different aspect of equivalence than was involved in the latter case, namely what constitutes an infringement rather than what negatives patentability, certain words of the Supreme Court in the *Graver* case are as applicable here as they were there. The Court said, 85 USPQ at 330-331:

What constitutes equivalency must be determined against the context of the patent, the prior art, and the particular circumstances of the case. *Equivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered in a vacuum.* * * * An important factor is whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was.

A finding of equivalence is a determination of fact. Proof can be made in any form; through the testimony of experts or others versed in the technology; by documents, including texts and treatises; and, of course, by the disclosure of the prior art. *Like any other issue of fact, final determination requires a balancing of credibility, persuasiveness and weight of evidence.* (Emphasis ours.)

"The Legal Doctrine of In re Ayres"

We have already quoted the board's view of what this doctrine is. In short, the proposition is that "cancellation of an anticipated member from the Markush group does not avoid anticipation of the remaining members." Applied to the facts of this case, what the examiner and the board contend is that the original generic claim, in which the formula appearing in claim 20, *supra*, had a "Y" where it now has -SH, with a definition of Y which included NH₂ as well as SH,

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was a "Markush" claim and according to doctrine developed with respect to claims bearing that name, when the generic claim is reduced in scope to a specific claim, from a claim directed to both amino and mercapto compounds to a claim to the mercapto compounds alone, what remains is a "Markush group of diminished scope" and appellants must show that it possesses "properties not shared by the larger group."

[8] Markush groups—so-called from the title of the case in which they were first permitted, *Ex parte Markush*, 1925 C.D. 126—were originally regarded as an exception to the previously acceptable claim terminology and were rigidly restricted to groups of substances belonging to some recognized class. Such was the rule at the time of the decision of *In re Ayres*, 23 C.C.P.A.

(Patents) 1118, 29 USPQ 424 , in 1936. If only equivalents recognized in scientific classification could be included in a Markush group, naturally the mere existence of such a group in an application tended to prove the equivalence of its members and when one of them was anticipated the group was therefore rendered unpatentable, in the absence of some convincing evidence of some degree of nonequivalency of one or more of the remaining members.

However, the original rigid, emergency-engendered restrictions have been progressively relaxed through the years to the point where it is no longer possible to indulge in a presumption that the members of a Markush group are recognized by anyone to be equivalents except as they "possess at least one property in common which is mainly responsible for their function in the claimed relationship." These last words are quoted from the 1953 revision of section 706.03 (y) of the Manual of Patent Examining Procedure (an official reference work prepared for the Patent Office examining corps). This revision was in effect prior to the rejection here under consideration.

In view of the existing situation in the Patent Office, it is not seen that the "Ayres doctrine," as the board has applied it, has much present validity. (We need not trouble to consider whether the *In re Ayres* case actually supports the "doctrine" as applied, a matter on which we have considerable doubt because the prior art seemed to show the equivalency. This court there refused to concede it did not.) True, if a Markush group happens to be made up of materials from an art-recognized or scientific class of equivalent substances, the principle of the rule would still apply but it can no longer be applied as a matter of course to everything called a Markush group.

[9] Moreover, the expression "Markush group" has come to be applied to formula-type claims like that here involved which are quite unlike the claims of the early cases in the Markush line. As early as 1951 the above section 706.03(y) provided, as it still does.

Where a Markush expression is applied only to a portion of a chemical compound, the propriety of the grouping is determined by the consideration of the compound as a whole, and *does not depend on there being a community of properties in the members of the Markush expression.* (Emphasis ours.)

This would seem to apply to the grouping of appellants' original claim in which Y equalled amino or mercapto and, if so, the mere fact of their having been claimed together fails to show any equivalency other than the functional equivalency discovered and first disclosed by applicants. Reliance thereon for rejection involves precisely the same fallacy we have found in the case of the "Borcherdt doctrine" application—the applicant's teaching is assumed to be the prior art.

We therefore are constrained to conclude that the board's rejection based on the application of "the legal doctrines of *In re Ayres* and *In re Borcherdt et al.*" must be reversed as contrary to Sections 102 and 103 of the patent statutes which we deem to be controlling.

[10] To sum it all up, actual equivalence is not enough to justify refusal of a patent on one member of a group when another member is in the prior art. The equivalence must be disclosed

in the prior art or be obvious within the terms of Section 103.

We wish to make one final point. At the oral argument the Patent Office Solicitor gave us the impression that he was urging upon us the existence of an actual art-recognizable "structural" equivalence between the prior art amino compounds and the claimed mercapto compounds, over and above any implied admission of such equivalence due to inclusion in a Markush group or expressly admitted functional equivalence. This point was not urged in the Patent Office brief but that brief does advert to the presence in the Schaeffer patents of "certain thiazoles *and certain mercapto* compounds," (emphasis ours) without any greater specificity as to the disclosure or amplification of the significance of this comment. For all we know there are ten thousand mercapto compounds.

[11] If we are correct in our understanding that we were asked to consider this point, we are compelled to state that we cannot do so for the reason that it

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was not raised either by the examiner or the board.

The decision of the Board of Appeals is *reversed*.

Footnotes

Footnote 1. Appellants' brief before the Board of Appeals states:

With the development of synthetic detergent compositions containing polyphosphates, such as tetrasodium pyrophosphate and pentasodium tripolyphosphate, there has arisen a tarnishing problem due to the action of the polyphosphates upon copper and nickel and copper alloys such as German silver. Warm solutions of synthetic detergent-polyphosphate compositions quickly turn these alloys a variety of shades from yellow to bluish black.

This problem was attacked by all concerned, and diligent (and, as it turned out, parallel) research has resulted in the invention of the tarnish inhibitors which are the subject of the Schaeffer patents, assigned to the Proctor & Gamble Company, and the tarnish inhibitors disclosed and claimed in the appellants' application, assigned to Lever Brothers Company.

Footnote 2. It is significant that when the Ayres and Borchardt doctrines, and many other aids to the determination of "invention," came into existence there was no statutory provision on the subject to serve as a guide. One reason for the inclusion of section 103 in the Patent Act of 1952, which became effective only on January 1, 1953, was, as stated in the reviser's note, the hope that "an explicit statement in the statute may have some stabilizing effect." The instant case is a good example of the need for such stabilization and illustrates the desirability of looking for guidance

to the fundamental law.

Concurring Opinion Text

Concur By:

WORLEY, Judge, concurring.

In agreeing with the result reached here it might be appropriate and of some possible service to the Patent Office and patent bar for me to say, as the judge designated by the court to write the opinion in the Borchardt case, that there was no desire or intention there to create a new doctrine. In so complex and technical a field as patents, it is extremely difficult to dispose of appeals with the degree of rhetorical preciseness possible in other fields of law without, at least to some degree, indulging in dictum. If the language in the Borchardt decision was capable of the interpretation placed on it by the Patent Office, and I do not say that it was not, it is regretted. However, that decision, although factually different, was intended to be based on the principle of the precedents cited therein. There was no intention to hold that a disclosure by an applicant that two or more materials were equivalent for his purposes would necessarily justify the rejection of a claim limited to one of such materials merely on the basis of a showing that another of them was known in the prior art.

- End of Case -